

WILMER CUTLER PICKERING
HALE AND DORR_{LLP}

November 3, 2005

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Josh L. Roland

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Re: *Ex Parte* Correspondence in IB Docket No. 02-364

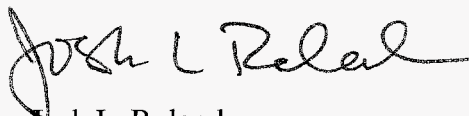
Dear Ms. Dortch:

Attached for inclusion in the record in the above-referenced proceeding is correspondence submitted by Globalstar LLC in response to questions from staff in the Commission's International Bureau in connection with Globalstar's October 17, 2005 letter asking that the Commission terminate the special temporary authority authorizations granted to Iridium Satellite LLC ("Iridium") following Hurricanes Katrina and Rita that authorized Iridium to provide service in the 1616-1618.25 MHz frequency band in which Globalstar is authorized to provide Mobile Satellite Service.

Should you have any questions regarding the attached correspondence, please contact the undersigned.

Pursuant to Sections 1.49(f) and 1.1206(b) of the Commission's rules, a copy of this letter has been filed electronically.

Respectfully Submitted,



Josh L. Roland
Counsel to Globalstar LLC

cc: William F. Adler



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October 21, 2005

VIA E-MAIL

Robert G. Nelson
Chief, Satellite Engineering Branch
International Bureau
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, D.C. 20554

Re: Iridium Special Temporary Authority, IBFS File Nos. SAT-STA-20050923-00180 and SAT-STA-20050923-00181; Letter from Roderick K. Porter to William F. Adler, dated October 21, 2005.

Dear Mr. Nelson:

This letter responds to your follow-up questions concerning Globalstar's letter to the Commission requesting immediate termination of the special temporary authority ("STA") granted to Iridium in the above-referenced applications because of harmful interference to Globalstar's system. Globalstar will provide responses to the other questions as quickly as possible.

1. Has Globalstar contacted Iridium to discuss this interference issue, as is current industry practice? If so, when did Globalstar first contact Iridium concerning this interference issue?

In addition to providing Iridium with a copy of its filing with the Commission, Globalstar today attempted to contact the appropriate people at Iridium to discuss this matter. As Globalstar discussed in Mr. Lake's October 17 letter, with regard to the 1616 - 1618.25 MHz portion of the band, Iridium's STA requires Iridium to "cease operations immediately upon notification of such interference and inform the Commission in writing immediately of such an event." Although Globalstar understands that the Commission would prefer that Globalstar and Iridium attempt in the first instance to work this matter out on their own, given the companies' difficulties coordinating their operations in the shared part of the L-Band between 1618.25 and 1621.35 MHz, Globalstar believed that the most prudent approach was to inform the Commission in writing that interference was occurring.

2. Is Globalstar currently in communication with Iridium about this interference issue?

Please see the answer to Question 1.

3. What discussions has Globalstar had with Iridium regarding this interference issue? What steps, if any, have been taken by either party to mitigate the interference?

Discussions between Globalstar and Iridium regarding the initial STA request, which the Bureau facilitated, took place on September 2 and September 6. On September 6 Iridium sent Globalstar an "Iridium-to-Globalstar Uplink Interference Budget" which was the basis

for Globalstar's assumption that Globalstar would not suffer harmful interference in the shared portion of the band. Mitigating interference under the circumstances presented here is a complicated process and not easily accomplished, as will be explained in the responses to other questions.

4. What has Globalstar done to rule out the possibility that the return link degradation it is seeing is not due to new handsets introduced into the disaster area, or attempts by users to use its handsets in unsuitable locations (e.g., inside sheltered areas), or some other degradation in its system?

Isolating the cause of interference in a satellite communications system is a very complicated and labor intensive process. Globalstar will provide a response to this question by October 28, 2005.

5. What complaints has Globalstar received from its customers regarding service degradation in the disaster area, and in the region as a whole?

Complaints come into Globalstar's Customer Care Center in Canada, and they are analyzed and categorized so that the right individual or the right organization can respond to the complainant. Because there are many potential causes for link failures, it is not possible to determine immediately the precipitating factor for any single complaint or group of complaints. In any event, objective measurements of link failure and interference are usually more reliable indicators of root causes than customer complaints. Globalstar will provide a further response by October 28.

6. Has any performance degradation been experienced at Globalstar gateways other than the Clifton, TX gateway?

A response to this question requires additional engineering analysis. Globalstar will provide a response to this question by October 28, 2005.

7. Has Globalstar performed link performance measurements similar to those described in its Technical Exhibit for any days other than August 4 and September 22? If so, can Globalstar provide the measured data to the Commission?

Yes. Globalstar will provide the measured data in response to this question by October 28, 2005.

8. Has Globalstar performed any laboratory measurements to assess return link degradation in the presence of interference from Iridium-like signals in controlled conditions similar to actual operations as seen at the Clifton, TX gateway? If so, what are the results?

Globalstar did not believe that the conditions placed on Iridium's STA's required that Globalstar conduct such an analysis, which would have required substantial time and resources. Nonetheless, we are searching our records to determine whether such an analysis was performed at any time in the past. Globalstar will provide a more detailed response to this question by October 28, 2005.

9. The Iridium STA permits Iridium to operate in the 1616.0-1618.25 MHz frequency band, which corresponds to part of Globalstar's channel 5, all of Globalstar's channel 6, and part of Globalstar's channel 7. Globalstar has indicated that it is receiving harmful interference to its channels 7 and 8, with no discussion of channels 5 and 6. We note that the subject Iridium STA does not appear to affect channel 8.

Channels 5 and 6 were covering the Northeast and Northwest United States. The analysis was concentrated on the disaster region covered by the Clifton, Texas, Gateway where Globalstar was attempting to improve the quality of service in the face of unprecedented demand following the hurricanes. The Gateways using Channels 5 and 6 were not sharing these channels with Iridium at capacity, and Globalstar would not expect to see the impact of additional interference when the Globalstar system was not operating at an unusually high demand level. As Globalstar has previously demonstrated in IB Docket No. 02-364, Globalstar's CDMA and Iridium's TDMA phones cannot share the same bandwidth when both systems have high usage, even though they can share the bandwidth when they have low usage.

10. In the second paragraph on page 1 of the Technical Exhibit, there appear to be some discrepancies in the frequencies and channel numbers listed by Globalstar. For example, we understand the band segment 1616.265-1622.415 MHz corresponds to channels 6-10, while Globalstar states that 1616.265-1621.415 MHz corresponds to channels 5-9. Please clarify this paragraph if necessary.

To clarify, the 1616.265-1622.415 MHz band does correspond to channels 6-10. Channels 5-9 correspond to (1615.035 – 1621.185) MHz.

11. On page 2 of its Technical Exhibit, Globalstar discusses small percentage changes in average frame error rates (FER) between 8/4/05 and 9/22/05. Has Globalstar performed an analysis to determine whether these small percentages are statistically significant?

Yes. Globalstar will provide a more detailed response to this question by October 28, 2005.

12. Can Globalstar explain why the relatively small increases in average frame error rates translate into a relatively large increase in radio link failure rates?

Yes. Globalstar will provide a response to this question by October 28, 2005.

13. On page 4 of its Technical Exhibit, Globalstar shows a 14% radio link failure rate for channel 3 on 9/22/05, which is higher than the radio link failure rates for channels 7 and 8 on 8/4/2005. Does Globalstar have an explanation for this? We note that Iridium does not operate on frequencies corresponding to channel 3.

Yes. Globalstar will provide a response to this question by October 28, 2005.

14. Figure 1 (Figure 6?) on page 5 of Globalstar's Technical Exhibit appears to show a number of Iridium carriers in Globalstar's channel 6 that is comparable to the number of Iridium carriers in Globalstar's channels 7 and 8. Has Globalstar experienced the same degradation in performance in channel 6 as it has in channels 7 and 8?

Please see the answer to Question 9.

15. We note that there was a problem with interference from the Johnson Space Center into Globalstar's forward links in the 2483.5-2500 MHz band prior to Hurricanes Katrina and Rita. Has the possibility that this interference was responsible for some or all of the link failures on September 22 been ruled out? Please explain.

The following table shows the effect of forward link interference from Johnson Space Center sources. The two columns show the radio link failure (RLF) for the users in the Clifton Gateway service area including and excluding the users in Houston area directly affected by the Johnson Space Center emissions. As shown in the table, there is a very slight difference in the overall RLF including and excluding the users affected by forward link interference. This is expected as the forward link interference causes a high number of registration failures while the return link interference causes the call in progress to drop (*i.e.*, RLF occurs) when the user terminal cannot increase the power any further to deal with the received interference. All the calls considered in the following table have call duration greater than 0.

	Clifton RLF	Clifton RLF without Houston traffic
8/4/05	8.1	8.1
9/22/05	13.9	13.3

Please contact me if you require any additional information in our October 28 further response.

Sincerely,



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cc: Chip Flemming
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BY EMAIL

October 28, 2005

Robert G. Nelson
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445 Twelfth Street, S.W.
Washington, D.C. 20554

Re: Iridium Special Temporary Authority, IBFS File Nos. SAT-STA-20050923-00180 and SAT-STA-20050923-00181; Letter from Roderick K. Porter to William F. Adler, dated October 21, 2005.

Dear Mr. Nelson:

This letter supplements our letter to you dated October 21, 2005 responding to your letter to William T. Lake, dated October 20. For clarity, we present our responses in full with those supplied on October 21 in *italics* and the new information supplied in **boldface**.

1. Has Globalstar contacted Iridium to discuss this interference issue, as is current industry practice? If so, when did Globalstar first contact Iridium concerning this interference issue?

In addition to providing Iridium with a copy of its filing with the Commission, Globalstar today has attempted to contact the appropriate people at Iridium to discuss this matter. As Globalstar discussed in its October 17th submission, with regard to the 1616 - 1618.25 MHz portion of the band, Iridium's STA requires Iridium to "cease operations immediately upon notification of such interference and inform the Commission in writing immediately of such an event." Although Globalstar understands that the Commission would have preferred that Globalstar and Iridium attempt in the first instance to work this matter out on their own, given the companies' difficulties coordinating their operations in the shared part of the L-Band between 1618.25 and 1621.35 MHz, Globalstar believed that the most prudent approach was to inform the Commission in writing that interference was occurring.

2. Is Globalstar currently in communication with Iridium about this interference issue?

Please see the answer to Question 1.

3. What discussions has Globalstar had with Iridium regarding this interference issue? What steps, if any, have been taken by either party to mitigate the interference?

The Bureau facilitated discussions between Globalstar and Iridium regarding the initial STA request on September 2 and September 6. On September 6 Iridium sent Globalstar an "Iridium-to-Globalstar Uplink Interference Budget" which was the basis for Globalstar's assumption that Globalstar would not suffer harmful interference in the shared portion of the band. Mitigating interference under the circumstances presented here is a complicated process and not easily accomplished, as explained in the responses to other questions.

On October 26, Globalstar held a teleconference with Iridium and Boeing engineers to try to pinpoint the source of the high Radio Link Failures (RLF) in Globalstar's channels 7 and 8 served by Globalstar's Clifton, Texas, gateway. Both parties agreed to cooperate in this investigation, and felt that the call was a good starting point. Globalstar has sent additional data, as promised during the call, to Iridium's engineers in an effort to narrow down the possible causes of the high RLF in Clifton. Iridium agreed to suspend its use of channels 7 and 8 for approximately 24 hours to help with this effort. Iridium indicated to us that this suspension would not compromise its emergency services.

During the teleconference, Globalstar addressed some of the questions raised by Wiley, Rein & Fielding in its October 19, 2005, letter in this file. First, Globalstar clarified that the spectrum analyzer data shown in Figure 5 of Globalstar's letter of October 17 did in fact show narrowband carriers in channels 5-9 (and not 1-4 as Iridium had thought) because the data was measured at intermediate frequency at the gateway, where the service link frequencies are actually mirror images of the C band feeder link frequencies (in other words, service link channels 5-9 appear at the low end of each feederlink sub-band corresponding to a service link beam). Second, Globalstar noted that multiple gateways serve users in the same beam and the same satellite, and that the September 22 data in our October 17 letter was acquired after the peak Hurricane Katrina demand had ebbed. Thus, it is not possible to infer capacity from the measurements reported in our October 17 letter. For its part, Iridium clarified some aspects of its system operation for the Globalstar engineers.

4. What has Globalstar done to rule out the possibility that the return link degradation it is seeing is not due to new handsets introduced into the disaster area, or attempts by users to use its handsets in unsuitable locations (e.g., inside sheltered areas), or some other degradation in its system?

As previously reported to the Commission, Globalstar increased the capacity of the Clifton, Texas gateway after Hurricane Katrina struck and sent some 10,000 satellite phones to FEMA, law enforcement and relief organizations and private customers. Specifically, on September 3 we added channel 3 to channels 7 and 8 at Clifton. Because the system recorded unusually high RLF in channels 7 and 8 immediately after the hurricane, all of the 10,000 phones were assigned to channel 3 (in Clifton) as they were activated. In other words, because of increased failure rates on channels 7 and 8, the gateway automatically avoided assigning more

customers to those channels. Channel 3 did experience an increase in RLF, which we attributed to the addition of thousands of new users who were unaccustomed to the proper use of the handsets. See also the responses to Questions 7 and 9.

5. What complaints has Globalstar received from its customers regarding service degradation in the disaster area, and in the region as a whole?

Complaints come into Globalstar's Customer Care Center in Canada and then are analyzed and categorized. Because there are many potential causes for link failures, it is not possible to determine immediately the precipitating factor for any single complaint or group of complaints. In any event, objective measurements of link failure and interference are usually more reliable indicators of root causes than customer complaints.

6. Has any performance degradation been experienced at Globalstar gateways other than the Clifton, TX gateway?

We have reviewed the call success rates for all of our gateways and have determined that, besides the performance degradation on channels 7 and 8 at Clifton, Texas, degradation was experienced during the period at Sebring, Florida, on channel 9. No other degradation was observed. Globalstar is conducting further investigation of the Sebring degradation to isolate the source.

7. Has Globalstar performed link performance measurements similar to those described in its Technical Exhibit for any days other than August 4 and September 22? If so, can Globalstar provide the measured data to the Commission?

Yes. Globalstar performed link analysis for the days from August 3 to October 19. Figure 1 shows the percentage RLF by channel for Clifton during that period. The normal RLF rate, is about 7-8 %, which is almost entirely attributable to typical user characteristics such as attempting to use a handset in an unsuitable location or failing to extend or maintain the rotating antenna at the proper angle.

As shown in Figure 1, RLF for channels 7 and 8 increased significantly from the normal rate after the hurricane. As noted above, Channel 3 was added to serve the demand for the new phones added to the system. Channel 3 performance improved significantly after the hurricane passed, but Channels 7 and 8 continued to show the high radio link failures. Channel 3 shows a consistent system behavior, where the failures increase when the demand is high during the hurricane-related usage and then decrease with reduced demand.

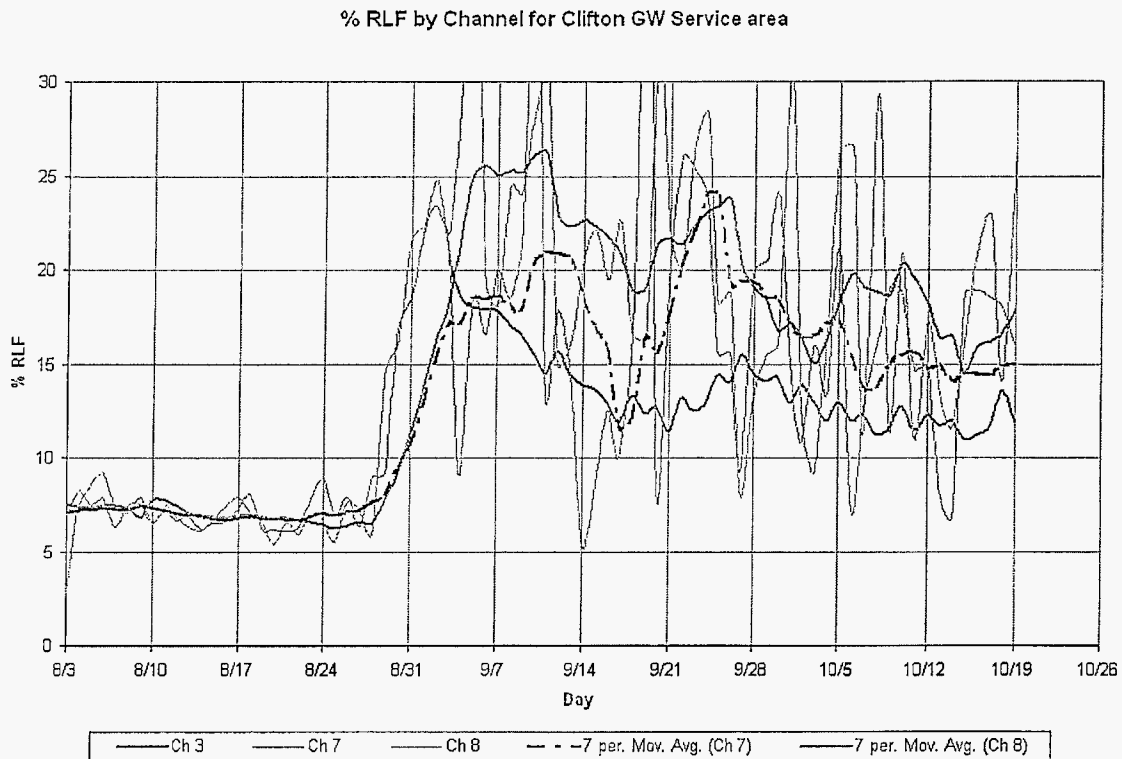


Figure 1 - % RLF by Channel for Clifton GW service area

8. Has Globalstar performed any laboratory measurements to assess return link degradation in the presence of interference from Iridium-like signals in controlled conditions similar to actual operations as seen at the Clifton, TX gateway? If so, what are the results?

Globalstar did not believe that the conditions placed on Iridium's STA's required that Globalstar conduct such an analysis, which would have required substantial time and resources. We have searched our records and found no laboratory measurements except those conducted in Italy in 1997 in connection with assembly of the satellites. Those tests did not use the frequencies on which Globalstar currently operates.

9. The Iridium STA permits Iridium to operate in the 1616.0-1618.25 MHz frequency band, which corresponds to part of Globalstar's channel 5, all of Globalstar's channel 6, and part of Globalstar's channel 7. Globalstar has indicated that it is receiving harmful interference to its channels 7 and 8, with no discussion of channels 5 and 6. We note that the subject Iridium STA does not appear to affect channel 8.

Channels 5 and 6 were covering the Northeast and Northwest United States. The analysis was concentrated on the disaster region covered by the Clifton, Texas, Gateway where Globalstar was attempting to improve the quality of service in the face of unprecedented demand following the hurricanes. The Gateways using Channels 5 and 6 were not sharing these channels with Iridium at capacity, and we would not expect to see

the impact of additional interference when we are not operating at the highest demand level. As Globalstar has previously stated, Globalstar's CDMA and Iridium's TDMA cannot share the same bandwidth when both systems have high usage, even though they can share the bandwidth when they have low usage. Because we were observing degradation across the channels in the 1616-1621.35 MHz portion of the band for the first time since the Commission required sharing in the 1618.25-1621.35 MHz segment, we chose to report this degradation in our October 17 letter.

10. In the second paragraph on page 1 of the Technical Exhibit, there appear to be some discrepancies in the frequencies and channel numbers listed by Globalstar. For example, we understand the band segment 1616.265-1622.415 MHz corresponds to channels 6-10, while Globalstar states that 1616.265-1621.415 MHz corresponds to channels 5-9. Please clarify this paragraph if necessary.

To clarify, the 1616.265-1622.415 MHz band does correspond to channels 6-10. Channels 5-9 correspond to (1615.035 – 1621.185) MHz.

11. On page 2 of its Technical Exhibit, Globalstar discusses small percentage changes in average frame error rates (FER) between 8/4/05 and 9/22/05. Has Globalstar performed an analysis to determine whether these small percentages are statistically significant?

Yes. A large increase in RLF (overall, from 8.1 % on August 4 to 13.9 % on September 22, with 26 % on channel 7) had a high associated FER (which rose from 14.98 % to 17.5 %). When this high FER is averaged with the low FER (2.27 % to 2.9 %) for successful calls, we find a small overall increase in FER (from 3.3 to 4.7 %). Depending on the amount of phone power available, the system tries to use power control to reduce the FER until the system reaches the level of maximum available phone transmit power. When there is no more power available, then the RLF occurs. RLF, when it occurs, causes a large variation in the FER because it is dependent on the user environment and user location. This large FER (15-17 %) variation when averaged with low FER for successful calls (~ 2 to 3 %) causes a small increase in the average FER, but large statistical variation in the absolute value of FER.

12. Can Globalstar explain why the relatively small increases in average frame error rates translate into a relatively large increase in radio link failure rates?

Yes. In fact, the cause and effect assumed in the question are reversed. A large increase in RLF causes a small increase in the average FER. The large RLF increase described in the previous response (from 8.1 % on 8/4 to 13.9 % on September 22, with 26 % on channel 7) had a high associated FER (which rose from 14.98 % to 17.5 %), which when averaged with the low FER (2.27 % to 2.9 %) for successful calls, caused a small overall increase in FER (from 3.3 to 4.7 %).

13. On page 4 of its Technical Exhibit, Globalstar shows a 14% radio link failure rate for channel 3 on 9/22/05, which is higher than the radio link failure rates for channels 7 and 8 on

8/4/2005. Does Globalstar have an explanation for this? We note that Iridium does not operate on frequencies corresponding to channel 3.

Yes. Channel 3 was added to the Clifton gateway on September 3 to serve the demand created by additional users in the face of heavy congestion on channels 7 and 8. As noted above, all the new users were assigned to channel 3. The higher RLF seen on Channel 3 is attributable almost entirely to the new users' lack of familiarity with the Globalstar handsets.

14. Figure 1 (Figure 6?) on page 5 of Globalstar's Technical Exhibit appears to show a number of Iridium carriers in Globalstar's channel 6 that is comparable to the number of Iridium carriers in Globalstar's channels 7 and 8. Has Globalstar experienced the same degradation in performance in channel 6 as it has in channels 7 and 8?

Please see the answer to Question 9.

15. We note that there was a problem with interference from the Johnson Space Center into Globalstar's forward links in the 2483.5-2500 MHz band prior to Hurricanes Katrina and Rita. Has the possibility that this interference was responsible for some or all of the link failures on September 22 been ruled out? Please explain.

The following table shows the effect of forward link interference from Johnson Space Center sources. The two columns show the radio link failure (RLF) for the users in the Clifton Gateway service area including and excluding the users in Houston area directly affected by the Johnson Space Center emissions. As shown in the table, there is a very slight difference in the overall RLF including and excluding the users affected by forward link interference. This is expected as the forward link interference causes a high number of registration failures while the return link interference causes the ongoing call to drop (i.e., RLF occurs) when the user terminal cannot increase the power any more to deal with the interference. All the calls considered in the following table have call duration greater than 0. Additional data for one week is provided in the table below to demonstrate that the effect of interference from the Houston area on the overall radio link failure for call duration greater than 0 is minimal.

	Clifton RLF	Clifton RLF without Houston traffic
8/4/05	8.1	8.1
Average from 8/3 to 8/10	7.675	7.5
9/22/05	13.9	13.3
Average from 9/16 to 9/23	13.03	12.75

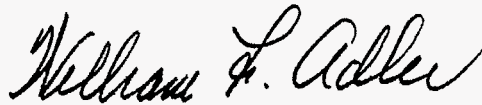
Mr. Robert G. Nelson

October 28, 2005

Page 7 of 7

Globalstar expects to continue its dialog with Iridium with a view to establishing a formal coordination agreement for the 1618.25-1621.35 MHz band segment. Should you have further questions concerning this matter, please contact the undersigned.

Sincerely,

A handwritten signature in black ink, reading "William F. Adler". The signature is fluid and cursive, with the first name "William" being the most prominent part.

William F. Adler

Vice President-Legal & Regulatory Affairs

William.adler@globalstar.com

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cc: Chip Flemming
R. Michael Senkowski